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## ***University of Chicago Review: ASD***

*Efim Gluskin  
Accelerator Systems Division*

*APS/Users Monthly Meeting  
July 25, 2007  
APS Auditorium*



U.S. Department  
of Energy

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**Charge to The University of Chicago Review Committee  
for the Accelerator Division of the Advanced Photon Source  
at Argonne National Laboratory**

**May 15 & 16, 2007**

The Committee's charge is to evaluate the quality of facility performance, its impact on DOE missions and national needs and its plans for future developments and improvements of the facility. Specific items for consideration include:

- Evaluate and benchmark the quality of the accelerator, engineering and infrastructural systems at the Advanced Photon Source (APS), discussing both strengths and challenges.
- Evaluate the APS' plan for future developments to enhance x-ray science including short-term enhancements and long-term upgrade plans.
  - Is the plan consistent with a national strategy for supporting x-ray science? Does it assess and address key programmatic gaps that should be filled? Does it accurately recognize and properly exploit key strengths of Argonne National Laboratory?
  - Does the plan realistically assess and address resource requirements (Laboratory, DOE, other) for implementing future developments, including strategies for exploiting other funding opportunities? Does the plan achieve an appropriate balance between necessary maintenance and upgrades versus innovative improvements?
  - Is the APS effectively organized to maximize the use of resources to provide appropriate staffing and expertise in support of accelerator, engineering and infrastructural systems?
- Evaluate the effectiveness of the Argonne Accelerator Institute in implementing collaboration, supporting accelerator initiatives, in developing, retaining and attracting world-class talent. Evaluate the Argonne Accelerator Institute's strategy for developing an external funding stream to build a sustainable program.

The University of Chicago Review Committee for the  
**ADVANCED PHOTON SOURCE (APS)**  
**ACCELERATOR SYSTEMS DIVISION**  
at Argonne National Laboratory  
**REVIEW COMMITTEE MEMBERS**  
May 15 & 16, 2007

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APS Accelerator Systems Division Review Committee Meeting*

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THE UNIVERSITY OF CHICAGO  
 Review Committee Meeting for the  
 Advanced Photon Source Accelerator Systems & Engineering Support Divisions  
 at Argonne National Laboratory  
 May 15 & 16, 2007



**Tuesday, May 15, 2006**

***Argonne Guest House Conference Room NAÓ***

**7:30 Š 8:15 am**     ***Executive Session: Breakfast Meeting*** for Board Liaison and Committee Members only

8:15 Š 8:30 am     Meet in Lobby of Guest House - Bus Transportation to APS Bldg. 401

***Advance Photon Source (APS) Š Bldg. 401  
 5<sup>th</sup> Floor Š Room A-5000***

8:30 Š 8:40 am     Welcome / Overview of Argonne by Director.....Robert Rosner

8:40 Š 9:20 am     Introduction by Associate Lab Director, Scientific User Facilities.....J. Murray Gibson

9:20 Š 10:00 am    Overview of Accelerator Operations and Research.....Efim Gluskin

***10:00 Š 10:10 am Break***

10:10 Š 10:50 am   Recent and Planned Improvements to Storage Ring Operations: Lattices,  
 Bunch Patterns and Short Pulses .....Louis Emery

10:50 Š 11:15 am   Progress and Plans for Improved Beam Stability .....Glenn Decker

11:15 Š 11:40 am   Short Pulse Upgrade .....John Carwardine

11:40 Š 12:05 pm   Operation and Developments of Insertion Devices .....Elizabeth Moog

12:05 Š 1:15 pm     ***Lunch*** with APS Early Career Staff in 5<sup>th</sup> Fl. Gallery

1:15 Š 2:15 pm     Site Tour

2:15 Š 2:55 pm     Overview of APS Engineering Systems Division .....William Ruzicka

***2:55 Š 3:05 pm Break***

3:05 Š 3:35 pm     APS Operations: Mechanical and Interlock Systems.....John Quintana

3:35 Š 4:05 pm     APS Operations: Controls, Computing and Conventional Facilities .....John Maclean

4:05 Š 4:35 pm     APS Operations: Electrical Systems.....John Carwardine

***4:35 Š 6:00 pm Executive Session***



THE UNIVERSITY OF CHICAGO  
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**Tuesday, May 15, 2007 (Cont.)**

- 6 Š 6:15 pm Bus Transportation from APS Bldg. 401 to Freund Lodge, Bldg. 600
- 6:15 Š 7:45 pm Reception / Dinner
- 7:45 pm Bus Transportation Freund Lodge to Argonne Guest House, Bldg. 460

**Wednesday, May 16, 2007**

*Argonne Guest House Š Conference Room NAÓ*

- 7:30- 8:15 am **Breakfast** with APS Mid-level Career Staff
- 8:15 Š 8:30 am Meet in Lobby of Guest House - Bus Transportation to APS Bldg. 401

*Advance Photon Source (APS) Š Bldg. 401  
5<sup>th</sup> Floor Š Room A-5000*

- 8:30 Š 9:10 am Potential and Challenges of an Energy Recovery Linac Upgrade to  
Advanced Photon Source (APS).....Michael Borland
- 9:10 Š 9:40 am Argonne Accelerator Institute Support for the APS Upgrade.....Rod Gerig
- 9:40 Š 10:40 am Committee Requested talks or one-on-one meetings
- 10:40 Š 2:00 pm Executive Session and Report Writing  
Working Lunch Š (to be served at 12:00 pm in A-5000)**
- 2:00 Š 2:30 pm Close-out session with ANL Directorate
- 2:30 Š 3:00 pm Close-out session with ALD and Advanced Photon Source Division Director(s)  
.....J. Murray Gibson, Rod Gerig, Efim Gluskin and William Ruzicka
- 3:00 pm Adjourn

## **The University of Chicago has completed the first phase of the 2007 review of the APS.**

A few of the committee's observations are:

- It is clear that the performance of the APS accelerator is at a very high level judged by world standards. The beam brightness has been increased to the limit imposed by the storage ring hardware and the accelerator staff is to be congratulated on this achievement.
- The storage ring downtime is at an impressively low level as evidenced by the achieved availability of 98%. At this level the more important metric is the Mean Time Between Failure (MTBF) and the committee is impressed by the APS culture that concentrates on further improvement of this parameter, and it encourages the APS to maintain progress.
- The plans that APS is developing for enhancement are seen to be consistent with the scientific requirements which are emerging nationally and are seen as fitting well into the national framework for synchrotron light sources.